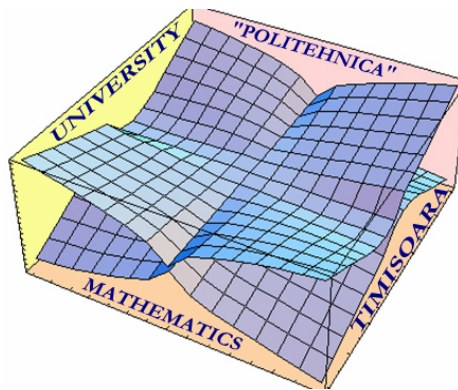# *DEPARTMENT OF MATHEMATICS*

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Researches in *MATHEMATICAL ANALYSIS*

RESEARCH FIELDS

- *Functional equations. Functional equations inequalities.*
- *Frame and Wavelet Analysis. Hyers-Ulam stability.*
- *Analysis on manifolds pseudo-Riemannian.*
- *Stochastic analysis, stochastic differential equations, stochastic modeling.*
- *Qualitative Theory of Functional Equation.*
- *Operator Theory.*
- *Dynamical systems and applications.*
- *Fluid mechanics.*
- *Calculus of varions and optimal control. Program Analysis and Verification.*
- *Ordinary differential equations.*
- *Theory of a-categories.*
- *Functional analysis.*
- *Numerical methods, asymptotic methods.*
- *Numerical results with FreeFem++ (modelisation and simulation numerical).*
- *Differential equations, numerical solutions, stability.*
- *Optimal control, collocation-type methods.*
- *Spectral methods in Hydrodynamic stability.*
- *Ricci flow. Spaces of Riemannian Metrics.*
- *GEOMETRY-Mechanical geometry*

RESEARCH CONTRACTS

Project CEEX, Modul III "Promovarea Cercetării Ştiinţifice" with subject "Operatorial Models and Applications" (Modele Operatoriale şi Aplicaţii) Contract cu MEdC nr. 69/2006. (Juratoni Adina)

CNCSIS Research Grant: "The geometric study of some systems of second order PDES and of the geometric modelling structures", CNCSIS code: AT/GR 226. (Vasii)

CNCSIS Research Grant: "Applications of the geometric structure, smooth and probabilistic operators in the study of the geometric models of several domains dynamical systems" (Aplicaţii ale structurilor geometrice, operatorilor diferentiali si probabilisti in studiul modelelor matematice pentru sisteme dinamice din diferite domenii). CNCSIS code A/550. (Vasii)

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3. Kovacs A, Kovacs L., Benyo Z., *Glucose-insulin control in Hardy-space*, Conference in Applied Mathematics (PAMM), Balaton-almadi, 26-29 May 2005, Bulletins for Applied&Computer Mathematics (BAM), 2005 T. CVII / 2250, pp. 106-115 T.U. Budapest, ISSN 0133-3526;

4. Kovacs A, Kovacs L., Jebelean T., *Practical Aspects of Algebraic Invariant Generation for Loops with Conditionals*, Conference in Applied Mathematics (PAMM), Balaton-almadi, 26-29 May 2005, Bulletins for Applied&Computer Mathematics (BAM), 2005 T. CVII / 2251, pp. 116-125, T.U. Budapest, ISSN 0133-3526;

5. Kovacs A, Kovacs L., *The Lagrange Interpolation Formula in Determining the Fluid's Velocity Potential through Profile Grids*, Conference in Applied Mathematics (PAMM), Balatonalmadi, 26-29 May 2005, Bulletins for Applied&Computer Mathematics

(BAM), 2005 T. CVII / 2252, pp. 126-125, T.U. Budapest, ISSN 0133-3526;

6. Kovacs A, Kovacs L., *Considerations on the Calculus Algorithm of the Fluid's Potential through Profile Grids*, Conference in Applied Mathematics (PAMM), Timişoara-Novi Sad, 31 July – 07 August 2005, Bulletins for Applied&Computer Mathematics (BAM), 2005 T. CVII / 2265, pp. 11-18 T.U. Budapest, ISSN 0133-3526;

7. Kovacs A, *The Practical Applicability of the Approximative Hodograph Method's several Variants,* International Conference, "Economy, Regional Development and Education" University Partium Oradea, 2006, pp. 329-342, ISBN(10)-973-86394-6-8, ISBN (13)-978-973-86394-6-1;

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10. Goleţ I., *Random p-normed spaces and applications to random functions*, Univ. of Istambul, Faculty of Science, The Journal of Mathematics Physics, and Astronomy, Vol.1 (2006), ISSN :1300-0713, pp. 31-42;

11. Golet I., Carstea H., Negrea R., *On Approximation of Random Signals and their Usage in Electronic Packaging*, Proc. 1st Electronics System integration Technology Conference - ESTC 2006, (IEEE Conference), Sept. 5th -7th 2006, Dresden, Germany, pp. 589-593, 2006;

12. Carstea H., Margheloiu D., Negrea R., Golet I., *Optimal Method for Electronic System Partition in Order to Implement the Fault Protective Redundancy,* Proc. 1st Electronics System integration Technology Conference - ESTC 2006, (IEEE Conference), Sept. 5-7 2006, Dresden, Germany, 671-673, 2006;

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17. Ciurdariu L., Bînzar T., *A characterization of subnormality for linear bounded operators on Loynes spaces*, St. Bull.of "Politehnica" University of Timişoara, seria Math.-Physics, Tom 51(65), 1, 2006, pp.55-61, ISSN 1224-6069;

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BOOKS

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10. Mihuţ I., Jivulescu M., *Algebră liniară, geometrie analitică şi diferenţială. Culegere de probleme*, Editura Politehnica, 2006, pages, ISBN (10) 973-625-330-9, ISBN (13) 978-973-625-330-0;

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14. Bota C., Babescu M., *Modelarea maşinii sincrone reactive*, Editura Politehnica Timişoara 2006, 150 pages, ISBN: (10)973-625-342-2; (13)978-973-625-342-3;

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16. Arieşanu C., *Algebră lineară*, Editura Politehnica, Timişoara, 2006, 120 pages, ISBN (10) 973-625-339-2, ISBN (13) 978-973-625-339-3;

17. Negrea R., *Statistical and Stochastic Modeling. Applications in Engineering and Economy*, Ed. Politehnica Timisoara, 2006, 488 pages, ISBN: (10)973-625-369-4; (13)978-973-625-369-0, (in Romanian);

18. Aron A., *Probleme de stabilitate în mecanica geometrică*, Editura Orizonturi Universitare, 2006, 200 pages, ISBN:(10)973-638-296-6; (13)978-973-638-296-3;

PERSPECTIVES

➢ Stability in so4 and so3. Numerical stability in mechanics geometry.

➢ New results on frames, fusion frames and Hyers-Ulam stability.

➢ Probabilistic applications to control statistic of quality and forecasting.

➢ Global dynamical systems on topological manifolds.

➢ Numerical Methods and Engineering Applications with Maple.

➢ Numerical Methods in Mathematics Financiar with Matlab.

➢ Calitativ studies of some dynamic systems using semigroup of operators.

➢ Member of Grant CEEX 69/2006 , Operatorial Models and Applications.

➢ We intend to use the fixed points methods to obtain new results of stability for various types of functional equations

➢ Bifurcation theory.

➢ Deformation Geometry of material structure.

➢ Publish the paper *On the Existence and Uniqueness of Solutions for certain Backward Stochastic Differential Equations,* to Applied Probability Journal.

➢ Participate at the conference and publish books.

RESEARCH TEAM

➢ Prof. Dr. Borislav CRISTICI
➢ Prof. Dr. Nicolae BOJA
➢ Prof. Dr. Mihai NEAGU
➢ Prof. Dr. Octavian LIPOVAN
➢ Prof. Dr. Adalbert KOVÁCS
➢ Prof. Dr. Gheorghe BABESCU
➢ Prof. Dr. Paşc GĂVRUŢĂ
➢ Prof. Dr. Emilia PETRIŞOR
➢ Assoc.Prof.Dr. Dorina RENDI
➢ Assoc.Prof.Dr. Pavel NĂSLĂU
➢ Assoc.Prof.Dr. Iosefina MIHUŢ
➢ Assoc.Prof.Dr. Ioan GOLEŢ
➢ Assoc.Prof.Dr. Dan DĂIANU
➢ Assoc.Prof.Dr. Dobrinca MIHAILOV
➢ Assoc.Prof.Dr. Doru PĂUNESCU
➢ Lecturer Nicolae CRIVĂŢ
➢ Lecturer Nicolae COFAN
➢ Lecturer Constantin BOTA
➢ Lecturer Sorin LUGOJAN
➢ Lecturer Tudor BÎNZAR
➢ Lecturer Camelia ARIEŞANU
➢ Lecturer Cristian LĂZUREANU
➢ Lecturer Romeo NEGREA
➢ Assist. Dr. Anania GÎRBAN

- Assist. Dr. Loredana CIURDARIU
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